Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A semiconductor device comprising

- a semiconductor component[[[(12)]], particularly a power laser diode bar, disposed on a cooling element[[(20)]],

- said cooling element[[(20)]] containing in its interior a cooling channel[[(26)]] serving to conduct a coolant and comprising in at least one region (32) microstructures for effective heat transfer to said coolant, ~~characterized in that~~ wherein said semiconductor component[[(12)]] substantially completely overlaps said region[[(32)]] of said cooling channel[[(26)]] comprising said microstructures, and disposed between said semiconductor component[[(12)]] and said cooling element[[(20)]] is an intermediate support[[(16)]] so arranged and configured that it compensates for mechanical stresses between said semiconductor component (12) and said cooling element[[(20)]] occurring as a result of differing thermal expansions of said semiconductor component[[(12)]] and said cooling element[[(20)]].

2. (Currently Amended) The semiconductor device as set forth in claim 1, ~~characterized in that~~ wherein said intermediate support[[(16)]] has a high modulus of elasticity such that it compensates for the mechanical stresses substantially within the elastic strain regime.

3. (Currently Amended) The semiconductor device as set forth in claim 1, ~~characterized in that~~ wherein said intermediate support[[(16)]] has a higher thermal conductivity than copper, particularly a thermal conductivity that is about 1.5 times higher than that of copper.

4. (Currently Amended) The semiconductor device as set forth in ~~one of claims 1 to 3~~ claim 1, ~~characterized in that~~ wherein the thermal expansion coefficient of said intermediate support[[(16)]] is adapted to the thermal expansion coefficient of said semiconductor component[[(12)]].

5. (Currently Amended) The semiconductor device as set forth in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said semiconductor component[[(12)]] is connected by means of a hard solder[[(14)]] to said intermediate support[[(16)]].

6. (Currently Amended) The semiconductor device as set forth in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said intermediate support[[(16)]] is connected by means of a hard solder[[(18)]] to said cooling element[[(20)]].

7. (Currently Amended) The semiconductor device as set forth in ~~at least one of claims 4 and 5~~ claim 4, ~~characterized in that~~ wherein a solder based on an AuSn solder is used as said hard solder[[(14, 18)]].

8. (Currently Amended) The semiconductor device as set forth in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said intermediate support[[(16)]] is fabricated of molybdenum, tungsten, a copper/molybdenum alloy or a copper/tungsten alloy, preferably having a copper content of about 10% to about 20%.

9. (Currently Amended) The semiconductor device as set forth in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said intermediate support[[(16)]] comprises a diamond composite material, particularly a diamond/metal matrix material, which particularly contains at least one of the material combinations diamond/copper, diamond/cobalt and diamond/aluminum.

10. (Currently Amended) The semiconductor device as set forth in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said semiconductor component[[(12)]] is a power laser diode bar.

11. (Currently Amended) The semiconductor device as set forth in claim 10, ~~characterized in that~~ wherein the semiconductor laser diode bar[[(12)]] and a beam-collimating device[[(40)]], particularly a microlens for beam collimation, are disposed on one and the same surface of said cooling element[[(20)]].

12. (Currently Amended) The semiconductor device as set forth in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein said cooling element[[(20)]] is composed of plural stacked, areally interconnected layers, a portion thereof being structured, to form in the interior of said cooling element said cooling channel[[(26)]] for conducting said coolant.

13. (Currently Amended) The semiconductor device as set forth in claim 10, ~~characterized in that~~ wherein the layers of said cooling element[[(20)]] are formed at least in part by the etching of structured copper foils.

14. (Currently Amended) The semiconductor device as set forth in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the length of the micro structured region [[(32)]] is at least equal to or greater than the length of said semiconductor component[[(12)]] and said microstructured region[[(32)]] completely overlaps said semiconductor component [[(12)]] in the lengthwise direction.

15. (Currently Amended) The semiconductor device as set forth in ~~at least one of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the width of said microstructured region [[(32)]] is equal to or greater than the width of said semiconductor component[[(12)]] and said microstructured region[[(32)]] completely overlaps said semiconductor component[[(12)]] in the widthwise direction.